

REMARKS

The Examiner is thanked for the due consideration given the application. The specification has been amended to add headings.

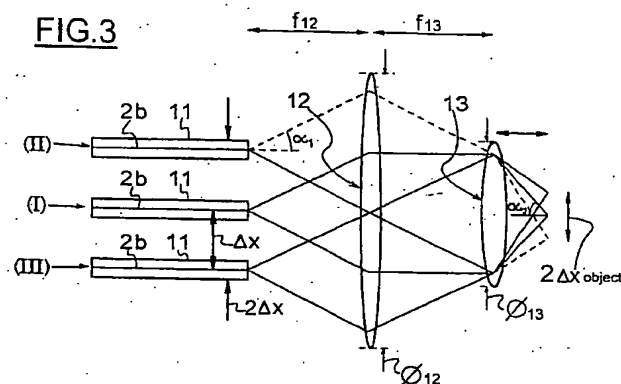
Claims 1-22 are pending in the application. The claims have been amended to improve their language in a non-narrowing fashion.

No new matter is believed to be added to the application by this amendment.

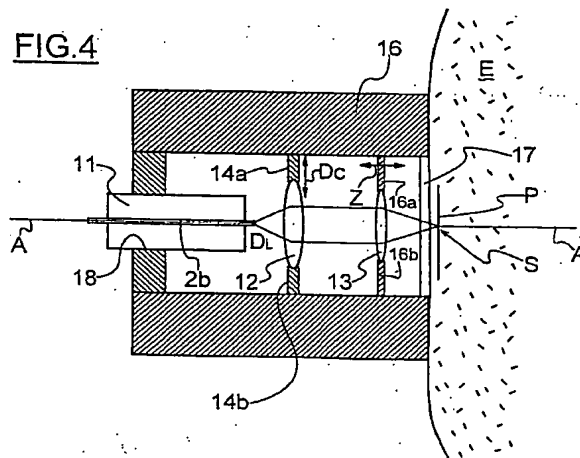
Rejection Over SEIBEL

Claims 1-22 have been rejected under 35 USC §102(e) as being anticipated by SEIBEL (U.S. Patent 6,975,898). This rejection is respectfully traversed.

The present invention pertains to a miniature confocal optical head for a confocal imaging system, particularly endoscopic, which is exemplarily illustrated, in part, in Figure 3 of the application, which is reproduced below.



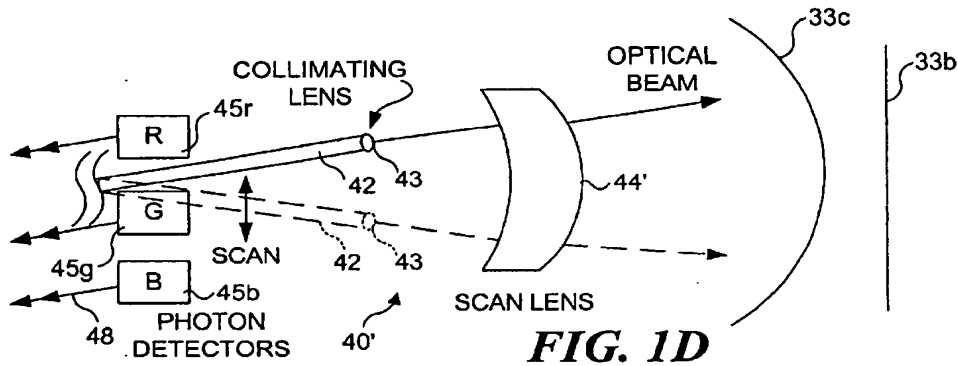
Claim 1 of the present invention recites "optical means (12, 13) capable of causing said optical beam to converge into an excitation point (S) situated in a subsurface plane (P) relative to the surface of a specimen." The convergence is illustrated, by way of example, in Figure 4 of the application, which is reproduced below.



Claim 1 of the present invention also sets forth: "mechanical micro-system means MEMS (14a-b) capable of moving in translation along a chosen displacement (Dc) at least one of the optical means (12, 13)."

In the present invention, the scanning direction, which is perpendicular relative to the optical axis, is obtained by the displacement of converging optical means.

SEIBEL pertains to a medical imaging system in which most of the optical means are fixed. The only optical means in displacement in SEIBEL is the collimating lens 43 in Figure 1D, which is reproduced below.



SEIBEL at column 8, lines 32-46 states:

FIG. 1D illustrates a scanning optical beam illuminator 40' that also includes scanning optical fiber 42, just as the embodiment shown in FIG. 1C. However, instead of using imaging lenses, scanning optical beam illuminator 40' employs a collimating lens 43 that is attached to the distal end of the scanning optical fiber and a scan lens 44'. The light conveyed through optical fiber 42 is collimated by collimating lens 43 and then focused onto a flat illumination plane 33b, or a curved illumination plane 33c, each corresponding to the ROI within a patient's body. Light reflected from each successive point that is scanned as the scanning optical fiber moves passes back through scan lens 44' and is detected by RGB detectors 45r, 45g, and 45b, which respectively provide the RGB signals over lines 48 used to produce an image, with data accumulated pixel by pixel.

However, claim 1 of the present invention clearly sets forth that the converging optical means moves in **translation**.

In contrast, the point source in SEIBEL is moved while a part of the fiber stays fixed, and the movement described by the point source is rotational and not in translation.

It is respectfully noted that **translation** is an affine transformation of Euclidean space which moves every point by a

fixed distance in the same direction. SEIBEL fails to disclose MEMs moving converging optical means in translation.

In other words, according to the present invention, lateral beam scanning is carried out by moving in translation converging optical means, and the optical axis of the optical head is thus modified only laterally and not angularly, as in SEIBEL. This has the advantages of preserving an axial illumination of the specimen, minimizing the diameter of the optical head and avoiding distortion or field curvature.

As a result, the present invention defined in claim 1 is not anticipated by SEIBEL, and results in a different and much more efficient optical head capable of realizing high quality images. Claims depending upon claim 1 are patentable for at least the above reasons.

This rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

Conclusion

The Examiner is thanked for considering the Information Disclosure Statement filed September 19, 2005 and for making an initialled PTO-1449 Form of record in the application.

Prior art of record but not utilized is considered to be non-pertinent to the instant claims.

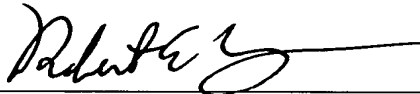
The rejection is believed to be overcome, obviated or rendered moot, and that no issues remain. The Examiner is

accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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